531468

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 21 May 2004 (21.05.2004)

PCT

(10) International Publication Number WO 2004/042803 A 1

(51) International Patent Classification⁷: G01L 21/30

H01L 21/00,

(21) International Application Number:

PCT/US2003/031529

- (22) International Filing Date: 31 October 2003 (31.10.2003)
- (25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/422,510

31 October 2002 (31.10.2002) U

- (71) Applicant (for all designated States except US): TOKYO ELECTRON LIMITED [JP/JP]; TBS Broadcast Center, 3-6 Akasaka 5-chome, Minato-ku, Tokyo 107-8481 (JP).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): YUE, Hongyu [US/US]; 5705 Janabyrd Lane, Austin, TX 78479 (US).
- (74) Agent: CASEY, Michael, R.; Oblon, Spivak, McClelland, Maier & Neustadt, P.C., 1940 Duke Street, Alexandria, VA 22314 (US).

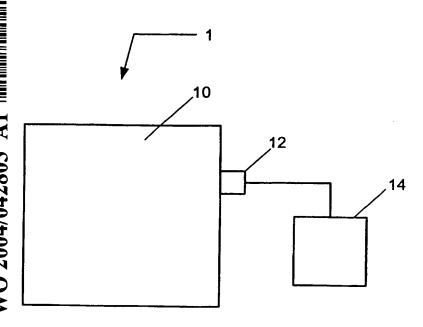
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD AND APPARATUS FOR DETECTING ENDPOINT



(57) Abstract: The present invention presents a method for detecting an endpoint of an etch process for etching a substrate in plasma processing system (1) comprising: etching the substrate; measuring at least one endpoint signal; generating at least one filtered endpoint signal by filtering the at least one endpoint signal, wherein the filtering comprises applying a Savitsky Golay filter (12) to the at least one endpoint signal; and determining (14) an endpoint of the etch process from the at least one filtered endpoint signal.